

Go Take a Hike!

Through the Pole Farm – Mercer Meadows 24rd Annual Hike

Take a Hike! Is an on-going series presented by the Lawrence greenways, trails and open space groups to feature a different park and its trails. The series will highlight the Greenways Annual hike and provide you with a little history of each park and a site map of the trails in that park. You can view all the trails in all the parks and open space in Lawrence at <http://www.lawrencetwp.com/documents/LawrenceTrailGuide.pdf>. In this trail guide you can link to all of the groups that support preserving open space to enhance the overall quality of living in Lawrence Township if you want to get involved in conserving and maintaining open space in Lawrence.

Lawrence Township, in partnership with volunteer organizations; and assistance from the state and county, has done a great job of preserving open space throughout Lawrence. Currently over 25% of Lawrence is preserved as open space. A number of these parks have trails that provide an easy walk to experience a part of Lawrence you cannot see from your car. The parks are free and open to all. Open Space actually increases in value the more you use it so come out and use your parks.

The Friends of Lawrence Greenways and the Open Space and Trails committee are sponsoring the 24th annual Township hike on Sunday October 19th through the Pole Farm in Mercer Meadows. The hike is 1.3 miles each way for a total of 2.6 miles. We will meet at 1:00 PM at Village Park for a close up view of the Pole Farm and trails through Mercer Meadows with a group of your neighbors. See the attached map for the hike and parking areas. For more details on this walk see <http://www.lawrencegreenway.org/index.html>.

The Pole Farm – Mercer Meadows Park is in the northwestern portion of Lawrenceville. The Pole Farm section of Mercer Meadows is approximately 1 square mile (640 acres). It is bounded by Cold Soil Rd. to the east, Keefe Rd. to the south, Blackwell to the north and Lawrence-Pennington Rd to the west. The Pole Farm – Mercer Meadows Park is dedicated to passive recreation and has a series of walking and biking trails. It is also part of the 20 mile Lawrence Hopewell Trails (LHT). The mission of the LHT is to connect the paths and trails through and around Lawrence and Hopewell with Bristol-Myers Squibb and Educational Testing Service facilities serving as the anchors. A map of the LHT is attached below. For information see the maps and events on the LHT website at <http://lhtrail.org/trail-guide/trail-sections/mercer-county-park-northwest-former-pole-farm/>.

Mercer County Parks Commission has developed a Master Plan for the entire Northwest Park (Mercer Meadows). The plan is to preserve the rural character of the area while enhancing access and expanding recreational and educational opportunities to the residents of Mercer County. Mercer Meadows is over 1,600 acres and is actually five separate parcels through Lawrence and Hopewell joined together. Details on the Mercer Meadow Master Plan can be viewed at http://nj.gov/counties/mercer/commissions/pdfs/park_mcpnw_master_plan.pdf and <http://www.mercercountyparks.org/parks/mercer-meadows>.

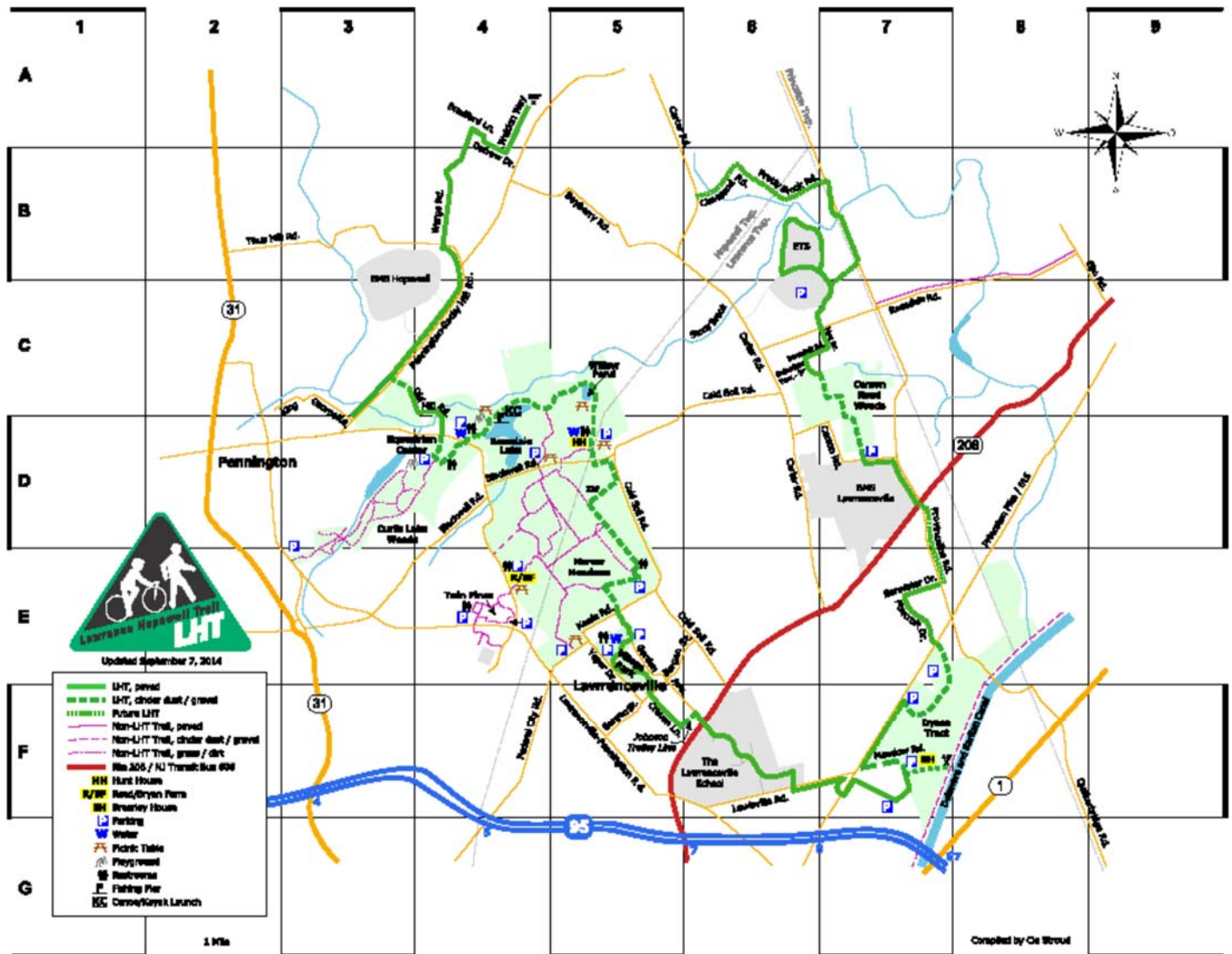
The Park is an excellent site for birders. 108 species of birds have been identified on the site by the Audubon Society including the following: Northern Harriers, Northern Saw-whet Owls, Long-eared Owls and Short-eared Owls, Wood Thrush, Eastern Wood-Pewee, Chimney Swift, Gray Catbird, Sharp-shinned Hawk, Northern Flicker and Wild Turkey, Blue-winged Warbler, Field Sparrow, Eastern Towhee, Grasshopper Sparrows, Bobolinks, American Woodcocks and American Kestrels. For more information on the birds spotted at the Pole Farm see <http://www.njaudubon.org/SectionIBBA/IBBASiteGuide.aspx?sk=2938>.

The Pole Farm is part of two watersheds. The northern portion of the park is in the Stony Brook Watershed which drains ultimately to the Raritan Bay. The southern portion of the park, where the annual hike is scheduled, is part of the Middle Delaware-Musconetcong Watershed per USEPA designation or Watershed 11 - Central Delaware Tributaries Watershed per NJDEP designation. Watershed 11 covers approximately 272 square miles and is dominated by the Assunpink Creek. See http://www.nj.gov/dep/watershedrestoration/wma11_info.html for more details on the watershed. The Pole Farm hike area is the headwaters for the Shipetaukin Creek which flows into the Assunpink Creek and then into the Delaware River by the Trenton War Memorial. The Shipetaukin Creek runs about five and one half miles before joining the Assunpink and its drainage area is about 6 square miles. You can view the Shipetaukin Creek flow gauge and quality data at USGS site at: <http://nj.usgs.gov/publications/adr/adr2007/PDF/01463661.2007.pdf>.

The geology of the site and that of Lawrence is very unique. Lawrence Township sits on the dividing line between the Piedmont Plateau in the northern portion of the Town and the Coastal Plains in the southern portion of the Town. The Pole Farm site sits squarely in the Piedmont Formation. The geology of the site like the watershed is also split between two major aquifer divides. The northern portion of the park is in the Passaic Formation. The aquifer in this formation is the second best in the State. The portion of the Pole Farm, where the Annual hike is scheduled, is in the Lockatong Formation which is the lowest yielding aquifer in the State. The bedrock of the site is dominated by shale and red mudstone and which are relatively close to the surface. You can view the bedrock and geology as the Shipetaukin and Stony Brook cut through the park. The soils of the Pole Farm are basically well drained silt loam and the Pole Farm soils are listed as prime agricultural lands. For more information see the Lawrence Township Environmental Resources Inventory at http://www.lawrencetwp.com/documents/Lawrence_ERI_Full.pdf

Enjoy your parks and the trails that are here for you to use to explore their wildflowers, birds, mammals and amphibians that inhabit these areas. There are a few guiding principles to follow. Remember carry in and carry out. All the trails in the Guide on the Township website are easy walking but some natural footpaths will be muddy in wet weather, and summer growth may obscure secondary trails. Always protect yourself against poison ivy and ticks in woods and meadows.

Lawrence Hopewell Trails



History of the Lawrence Pole Farm – from a technological marvel to just a marvel of passive open space to be enjoyed – by Dennis Waters¹

The story of the Pole Farm begins in the late 1920s, when there were around 30 million telephones in the world. Half of these were in North America and most of the rest were in Europe. The problem was that North American customers could only call other phones in North America; half of the phones in the world were not accessible to AT&T's customers.

The only option for solving this problem with the current technology was long wave radio. The first radio telephone circuit was placed into operation in January of 1927. The cost was \$75 for the first three minutes between New York and London. There was only one circuit; if someone was using it, everyone else had to wait. Bell Labs engineers in New Jersey did not see much of a future for long wave and they soon turned their attention to a newer more innovative technology - short wave.

In early 1928 ATT selected a short wave radio receiving site for the European short wave radio tower near Netcong, New Jersey at the old Morris Canal near what is now the intersection of Route 206 and I-80. ATT then set about selecting a transmitter site. This transmitter site, that could not be built near the receiving station because of interference between the two.

They needed several hundred acres of flat land with a reliable source of electric power close to the main AT&T telephone trunk line that runs up and down the East Coast. They started looking among other sites in Mercer County. Old memos in the AT&T Archives first mention the Pole Farm site in late August 1928. By this time they had already visited the site and secured options to purchase the land. The sellers were fourteen local farmers. AT&T closed on all fourteen parcels over two days on September 25-26, 1928.

The site would provide three shortwave circuits to London and one to Buenos Aires. There would be two buildings on the site to house transmitters and administrative offices. The goal was to have the first channel to London in operation by June 1, 1929. ATT had a big task before them. They had to design, manufacture and install the equipment. In addition, they needed offsite improvements to the local access roads, bring electricity to the site, and acquire the rights-of-way to bring phone circuits up from the main trunk line near today's US-1. A positive side effect was Lawrence farmers were the first in the area to receive phone service and, in some cases electricity.

There were 26 towers on the Pole Farm site, each 180 feet tall. The Towers were placed 250 feet apart so that the end to end distance was about a mile. The antennas called Sterba curtains were wire mesh curtains that hung between the support towers. Each radiotelephone channel needed six of these curtains. The wire rope used to move the antennas was sourced from Roebling in Trenton. There was a buy local program even back in the 1930's.

While all of this work was occurring at the Lawrenceville site, AT&T's counterparts in England and Argentina were busy building their own matching shortwave receiving and transmitting stations. The cost of the Lawrenceville site was about \$25 million in 2014 dollars, plus the cost of equivalent transmitting and receiving stations at the other end.

In 1929 the Pole Farm traffic volume increased to 47 calls a day, although it jumped to 130 calls on the day of the stock market crash, October 29, 1929. By 1930 AT&T was able to cut the price of a call to \$30 for the first three minutes. The Lawrenceville site quickly became a wonder of the technological world. In 1930 the site played host to 1,500 visitors.

Innovations in antenna technology were taking place at the same time. In 1932 service to Bermuda was added at Lawrenceville using a new design called a Rhombic antenna. Besides being smaller and cheaper, Rhombic antennas offered many technical advantages over the Sterba curtains. In 1939 the Sterba steel towers built in 1929 were torn down and sold for scrap, obsolete after only ten years.

Call volume increased to 50,000 per year in 1937. In 1939, with war breaking out in Europe, Lawrenceville was transmitting directly to London, Paris, Bermuda, Buenos Aires and Rio de Janeiro. On December 7, 1941, Prime Minister Winston Churchill phoned President Franklin Roosevelt, with the US side of the conversation beamed through Lawrenceville.

¹ Summarized from historical notes on the Pole Farm Site provided by Lawrence Township Historian Dennis Waters

After Pearl Harbor, the character of the Pole Farm changed. It was the only US telephone gateway to our Allies in London. As a result, the War Department viewed it as a target for saboteurs, so fences were built, lights were installed, and armed guards were posted at the site. The standard AT&T radio technology could not provide a secure communications link using a simple form of analog scrambling. It could deter casual eavesdropping, but it was not enough to deter a sophisticated enemy. Because of the need for secure telephone communication Bell Labs developed a more advanced form of encryption in July 1943. By the end of 1943, the Pole Farm no longer carried confidential conversations.

After the war, demand for international calling was growing. By 1948, the site housed 31 transmitters beaming to 26 countries through 46 rhombic antennas. In 1955 for the first time the facility handled one million calls, which grew to 2.5 million two years later. In 1957 a new wing was added to Building One to house 24 more transmitters. At this point Lawrenceville was the largest radiotelephone station in the world, with a shortwave power output of one million watts.

With only 830 acres to work with, and with each twin rhombic occupying ten acres, AT&T really had to pack them in. At this point the site had been almost completely stripped of trees and all extraneous buildings had either been demolished or moved off the site.

1963 was the busiest year for the Pole Farm. Six million telephone calls were funneled through the station. It was also the year of AT&T's final big investment at the site. Construction was begun on a new wing at Building One to house an enormous emergency diesel generator. This generator could supply 1.5 megawatts, which was enough to power the entire facility. 1963 marked the high water mark for the site. After that, the Pole Farm began a long, slow decline. Once itself a technological leader, it fell victim to even newer technology.

In 1956 the first telephone cable was laid across the Atlantic. More cables were laid and by 1965 there were over 300 cable circuits between the US and Europe. This was far more capacity than the Pole Farm provided, and shortwave radio assumed a backup role for the high-traffic circuits to Europe in case a cable was cut. 1965 saw the launch of the Early Bird communications satellite. Satellites could provide high-quality, cost-effective service to smaller, more remote locations where the undersea cables did not go.

By the late 1960s poles had started to come down as circuits to more and more cities were discontinued. 1973 AT&T made the decision to close Lawrenceville. The lights went out on December 31st, 1975. By that time only 13 antennas remained standing and the site served only five cities. The sole live circuit was to Guantanamo Bay and it carried only a few calls a day.

Once the Pole Farm was closed, AT&T was quick to demolish the facility. All that remained was a single 80-foot pole left standing at the request of a local farmer who said he needed a lightning rod to protect nearby buildings. This was part of the twin rhombic that had served Tel Aviv.

AT&T continued to own the site for two decades, and leased most of the land to local farmers. In the early 1990s it reached an agreement to sell to developers who wanted to construct an exclusive gated community built around a Jack Nicklaus designed golf courses. The members of the various open space, greenways and environmental resources committees as well as local conservation organizations committees worked tirelessly to oppose the development. They worked with Lawrence official to help persuade the county to purchase the site as open space. In 1995 Mercer County purchased the property in 1995 for \$8.6 million.

There is a long history of this site in the story of New Jersey, including in the 1700's when New Jersey was two providences East and West New Jersey divided by Providence Line Road and hundreds of years before that when the Lenape Indian and early American native tribes inhabited the site. Dennis Walkers Lawrence Township history who we are greatly appreciative of his facts on this site summarized here, can be reached at www.lawrencehistory.com for more details about the history Lawrence.

Today, as part of the Mercer Meadows county park, the Pole Farm tract has been set aside for passive recreation. Many miles of new hiking and biking trails have been built, and the county has installed interpretive signs that tell the story of the site's role in telecommunications history. Every week hundreds visit this beautiful preserved open space and try to imagine what it was like there when it was the nerve center of transatlantic communications.

You can see below what this once technological marvel of the 20's and 30's has become a Technicolor marvel of wildflowers and birds. It is a marvel what local activism can do. Join us for a hike through this marvel of open space. Enjoy The Pole Farm Park and its trails and let us know how we can make our open spaces better.

**The ATT short wave radio station showing the Starba Curtains
off of Cold Soil Rd. circa 1930s**



**Last remained single 80-foot pole left standing that was part of
the twin Rhombic antenna that had served Tel Aviv**



The fields of wild tickseed sunflowers on the Pole Farm site were the ATT towers stood circa 2014 - “A Technological marvel”



